Date: Fri, 23 Sep 94 04:30:20 PDT
From: Ham-Ant Mailing List and Newsgroup <ham-ant@ucsd.edu>
Errors-To: Ham-Ant-Errors@UCSD.Edu
Reply-To: Ham-Ant@UCSD.Edu
Precedence: Bulk
Subject: Ham-Ant Digest V94 #318
To: Ham-Ant

Ham-Ant Digest Fri, 23 Sep 94 Volume 94 : Issue 318

Today's Topics:

Send Replies or notes for publication to: <Ham-Ant@UCSD.Edu>
Send subscription requests to: <Ham-Ant-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Ant Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-ant".

Date: 22 Sep 94 14:44:49 GMT
From: news-mail-gateway@ucsd.edu
Subject: CATV feedline
To: ham-ant@ucsd.edu

I've obtained a quantity of CATV coax cable that I'd like to use for feedline runs out to a future tower/antenna. Can someone help me identify this cable. I have some from two manufacturers. They are marked as follows:

TFC T10 K CATV
and
1994 COMMSCOPE INC (no other markings other than foot markers)

Both are 11/16" o.d. with 1/8" center conductor.
Both have solid aluminum shield and have foam dielectric.

Is this "standard" CATV cable? By "standard" I mean is this the 75 ohm stuff other people are using for ham installations? Any precautions I should be aware of? Thanks.

73
Kris AA5UO

Date: Thu, 22 Sep 94 04:36:52 -0500
From: news.delphi.com!usenet@uunet.uu.net
Subject: SGC "QMS" mobile HF antenna
To: ham-ant@ucsd.edu

Daniel T Senie <dts@world.std.com> writes:

>If you are thinking of this antenna, read the "Arials" article in the
>latest World Radio. Kurt Sterba (not his real name) really roasted this
>antenna system. In general, if he likes a product, it must be pretty
>good.If he does not like a product, or the advertising for a product,
>he lets loose on it...
>
>Recommended reading :-)

Yep, I read it...I enjoy "Kurt's" articles. Just wanted to see
if anyone has actually tried the antenna. The more I think about
it, the less I'm convinced that it's the way to go.

73 de KB3RG

Date: 22 Sep 1994 21:38:41 GMT
From: news.tek.com!tekgp4.cse.tek.com!royle@uunet.uu.net
Subject: SGC "QMS" mobile HF antenna
To: ham-ant@ucsd.edu

fred-mckenzie@ksc.nasa.gov (Fred McKenzie):

>In article <Z6yRPHr.mlazaroff@delphi.com>, mlazaroff@delphi.com wrote:
>> frequencies (80 and 40 meters). I might be able to believe it's more
>> effective than a "regular" 8 or 9 foot whip antenna, but I'm not
>> convinced that it's more effective than a good center-loaded antenna
>> like the "screwdriver", High Sierra, Hustler, etc.

>Mike-

>I agree with you. First, consider a full quarter wave ground plane. You
>will find roughly 2/3 of the radiation resulting from current flowing in
>the bottom 1/3 of the vertical element.

>In a second case, look at vertical that is 1/3 of the length of a quarter
>wave. If you top-load it with some kind of capacity hat, you should
>expect it to radiate at least 2/3 as well as the full length antenna.

>In a third case, consider a loading coil at the bottom of a 2/3 length
>vertical. There is no radiation from below the coil. You should expect
>it will only radiate 1/3 as well as the full length antenna. This is only
>1/2 as much as the first case, even though it is twice as long.

>The pattern should be obvious: the longer you make the vertical element
>BELOW the loading coil, the more signal will be radiated. A trade-off is
>that an antenna with the loading coil higher, will probably have a
>narrower bandwidth than one with the lower coil.

>The continuously loaded case may not work as well on the best frequency.
>However, its wider bandwidth could prove the deciding factor if you don't
>have a tuner.

>73, Fred, K4DII

"Science hasn't been set back as much by getting the wrong results using
the right methods as by getting the right results using the wrong methods"

-- A college professor whose name, alas,
was stored in some of my brain cells which
have since died

It is true that in a full quarter-wave element, half the field strength comes from the lower 1/3 of the antenna. However, if we replace the bottom 1/3 of the antenna with a non-radiating loading coil, it doesn't reduce the field strength by 1/2. In the absence of loss, the change in field strength will be tiny. (There's a very small change due to the small change in pattern. But the difference between a full quarter-wave element and an infinitesimally small one is less than 0.5 dB.) Doesn't this make sense? Using a vertical radiator as an example, we've still got an omnidirectional horizontal pattern. The vertical pattern shape is very nearly the same. So for the same power input, we *have* to have very nearly the same field strength as before. What happened when we put in the loading coil is that the current in the remaining part of the antenna increased, which raised the field strength to very nearly the value it had without the loading coil. In fact, it's just this phenomenon which makes the shorter vertical inferior to the long one in practice. The much larger current causes increased loss. The loss reduces the efficiency, hence the field strength, of the antenna. The reduced field strength is *not* due to replacing a radiating portion of the antenna with a non-radiating loading coil or top hat, since the field strength from the remaining portion of the antenna increases to make up the difference.

Now, why is a center-loaded whip better than a base-loaded one? Unfortunately, the answer isn't the "obvious" one implied. The reason is that in order to make a whip resonant, we need to add inductance. If we put the inductance at the base, it's at the place where the current is greatest (and remember, it's very large for a short antenna), so I-squared-R loss in the inductor is bad. If we move the inductor upward, the current flowing through it decreases. But, consistent with the Law of Conservation of Difficulty, the amount of inductance required to achieve resonance increases. So we have to have more inductance, with unavoidably more R. If you crank through the numbers, though, with typical components, you can calculate that the net loss decreases as the inductor gets higher in the antenna, until you reach about the mid-point. Above that, you begin losing again. And that's why center-loaded whips are more efficient, as a general rule, than base-loaded ones. A top hat is best because it provides the reactance needed to resonate or partially resonate the antenna, but has much lower loss than the typical inductor.

So why is it that the more I learn about this stuff, the less obvious it gets?

73,
Roy Lewallen, W7EL
roy.lewallen@tek.com

Date: 21 Sep 1994 23:37:15 -0700
From: nntp.crl.com!crl4.crl.com!not-for-mail@decwrl.dec.com
Subject: What about mobile lightning protection?
To: ham-ant@ucsd.edu

Craig Bosworth (craigb@sdd.hp.com) wrote:
: What about lightning protection for a mobile rig? Or if not
: protection for the rig, what about safety for the occupants
: in the event of a strike?

You are safe from most lighting inside the car. However if the vehicle is actually struck there is a possibility of be hurt or killed. The same risk of being hit while inside a house.

: This past weekend, I made a trek up to a local peak to check
: out the view. Due to poor planning :-), I arrived in the middle
: of a thunderstorm. There were several lightning strikes within
: 1000 feet of the vehicle.

The problem here is the discharge field or induced voltages in the antenna from the strike. Offten an antenna will be destroyed by lighting without ever being directley struck. The current flow in the tower set

up a field that destroyes the antenna.

: I am under the impression that a steel bodied vehicle is a pretty
: good place to be during an electrical storm because it acts as
: a Faraday cage. (Is this correct?) But I have no idea what the
: implications are of having a roof mounted antenna and feedline
: running to my rig beneath the passenger seat.

: In the event, I just decided to vacate the mountaintop as quickly
: as possible.

Good idea. The hill top is noit the place to be during a storm. If the
electrical activity in a storm is real strong seek cover inder an
overpass. That was the suggestion from the Nation Weather service to
those of use who were acting as storm chasers in Skywarn.

Ron N5HYH

Date: 22 Sep 1994 10:59:30 GMT
From: dog.ee.lbl.gov!agate!howland.reston.ans.net!cs.utexas.edu!convex!
news.duke.edu!eff!wariat.org!malgudi.oar.net!swiss.ans.net!news.dfn.de!
news.belwue.de!news.uni-ulm.de@ihnp4.ucsd.edu
Subject: Yagi Antenna for UHF TV
To: ham-ant@ucsd.edu

In article <CwHt07.Epp@newbridge.com>,
David Malecki <David_Malecki@qmail.Newbridge.com> wrote:
>- does scaling work (I think it should)
yes, but be aware that the ratio of length to diam. is an important
parameter too.

>- would changing from aluminum tubing to solid aluminum (for the
>reflector
> and directors) make a big difference in desired lengths (or general
> performance)
see above.

>- how much performance (if any) would I loose by using a conducting
>boom such
> as aluminum (I'm currently using a wooden dowel, i.e. experimental
>version
There are corection factors. add about half the boom diam.
to the element length. It also depends on wether elem. are
conductively connected to the boom.

>- is it worth going to a larger (more elements) antenna for a little

>extra
There are tables in TV handbooks on how much signal is required
to get the snow off the pictures. Work it out from there.
Doubling the number of elements and boom length gives 3dB,
stacking gain is 2,5 dB for doubling the number of antennas.

If your cable exceeds 30ft consider a mast head pre amp.

What channel is it for? I have dimension listings for some UHF
frequencies.

Moritz.

Date: Thu, 22 Sep 1994 11:38:30 GMT
From: ihnp4.ucsd.edu!dog.ee.lbl.gov!agate!howland.reston.ans.net!swrinde!emory!
nntp.msstate.edu!olivea!news.bu.edu!gw1.att.com!nntpa!not-for-
mail@network.ucsd.edu
Subject: Yagi Antenna for UHF TV
To: ham-ant@ucsd.edu

UHF Yagis can be scaled but you must take into account element
diameter and boom diameter (element lengths need to be altered to
account for metal booms).

The biggest problems with long Yagis for TV is the very narrow
bandwidths of Yagis. That's why many TV antenna designs are
log periodic or corner reflectors with bowties.

Ken

End of Ham-Ant Digest V94 #318
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